

REMARKS

I. Status of the Claims

Claims 1, 3-8, 18, 26-32, 35, 72, 73, and 75-89 are pending in this application. Claims 2, 9-17, 19-25, 33-34, 36-71, 74, and 90-121 were cancelled previously, without prejudice or disclaimer. No claims are amended herein.

II. Rejections Under 35 U.S.C. § 103(a)

The Examiner reiterates many of the rejections previously presented. Specifically, the Examiner rejects claims 1, 3-8, 18, 26-32, 35, 72-73, and 75-89 under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent No. 6,410,005 to Galleguillos et al. ("Galleguillos"), or U.S. Patent No. 6,663,855 to Frechet et al. ("Frechet '855"), or U.S. Patent No. 6,685,925 to Frechet et al. ("Frechet '925"), or U.S. Patent No. 6,197,883 to Schimmel et al. ("Schimmel"), or U.S. Patent No. 6,153,206 to Anton et al. ("Anton"), in view of U.S. Patent No. 5,994,446 to Graulus et al. ("Graulus"), U.S. Patent No. 6,518,364 to Charmot et al. ("Charmot"), or U.S. patent No. 6,410,666 to Grubbs et al. ("Grubbs"). See Sept. 7, 2007, Office Action at 3.¹ Applicants respectfully traverse for at least the reasons of record and the additional reasons presented below.

To establish a *prima facie* case of obviousness, the Examiner must:

make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person.

¹ The Examiner also asks, with respect to claim 89, "what the scope and meaning of the linear block 'ethylene' are." Sept. 7, 2007, Office Action at 2. Applicants direct the Examiner's attention to paragraph [021] of the specification, which defines "ethylene polymer" as "a polymer obtained by the polymerization of monomers containing an ethylenically unsaturated group."

Knowledge of applicant's disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search and evaluate the "subject matter as a whole" of the invention. The tendency to resort to "hindsight" based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

M.P.E.P. § 2142. "The key to supporting any rejection under 35 U.S.C. § 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious."

Id. It is important to note, moreover, that the prior art references relied upon in a rejection "must be considered in its entirety, i.e., as a whole, **including portions that would lead away from the claimed invention**," when such reasons are articulated by the Examiner. M.P.E.P. § 2141.03(VI) (second emphasis added); *see also Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 U.S.P.Q. 459, 467 (1966). "A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or **would be led in a direction divergent from the path that was taken by the applicant**." *In re Gurley*, 27 F.3d 551, 553, 31 U.S.P.Q.2d 1130, 1131 (Fed. Cir. 1994) (emphasis added).

Applicants respectfully submit that such reasons are not present in the rejection of record at least because the prior art relied upon by the Examiner, when considered as a whole, provide no reason that would have prompted a person of ordinary skill in the art to modify the references in the manner suggested by the Examiner. Moreover, the prior art, when considered as a whole, teaches away from the claimed invention.

A. Block Polymer Comprising 50% to 90% of at Least One First Block Having a $T_g \geq 40^\circ\text{C}$ and 5% to 45% of at Least One Second Block Having a $T_g \leq 20^\circ\text{C}$

The Examiner states that the amendment to claim 1 made in the previous response does not distinguish the claimed invention from the prior art. See Sept. 7, 2007, Office Action at 10-11. Applicants continue to disagree for the reasons of record and for at least the following additional reasons.

1. The Claimed Invention Has Unexpected Properties as Compared with the Prior Art References

Applicants submit herewith the Declaration of Bertrand LION Under 37 C.F.R. § 1.132 ("Declaration"), which demonstrates that a polymer according to the claimed invention (50% to 90% of at least one first block having a $T_g \geq 40^\circ\text{C}$ and 5% to 45% of at least one second block having a $T_g \leq 20^\circ\text{C}$) has unexpected improved results, in terms of oil resistance, as compared with a comparative polymer of the prior art. See Declaration at ¶¶ 12-13. Specifically, Applicants prepared a polymer according to the claimed invention containing 70% of a first block polymer (mixture of 50% isobornyl acrylate and 50% isobornyl methacrylate) with a T_g of 102°C and 30% of a second block polymer (isobutyl acrylate) with a T_g of -24°C . See *id.* at ¶¶ 6-7. Applicants also prepared a comparative polymer containing 30% of a first block polymer (mixture of 50% isobornyl acrylate and 50% isobornyl methacrylate) with a T_g of 102°C and 70% of a second block polymer (isobutyl acrylate) with a T_g of -24°C . See *id.* at ¶¶ 6, 8. The oil resistance of the polymers was determined over a period of time ranging from 15 minutes to 48 hours, and it was shown that the polymer of the claimed invention possessed significantly better oil resistance as compared with the comparative polymer. See *id.* at ¶¶ 9-12 and Table 1. These results are unexpected given that it was not

known and could not have been predicted that a composition containing an amount of 50% to 90% by weight of at least one first block polymer with a Tg greater than or equal to 40°C and 5% to 45% by weight of at least one second block with a Tg greater than or equal to 20°C would significantly improve oil resistance. *See id.* at ¶ 13.

Because one skilled in the art would have been surprised by these results, the Declaration supports Applicants' position that the claimed invention would have not have been obvious. Accordingly, Applicants respectfully request that the Examiner withdraw this improper rejection.

2. Frechet '855 and Anton Expressly Teach Away from the Claimed Invention

Applicants continue to believe that all of the references relied upon by the Examiner would not have motivated one skilled in the art to use the claimed ratio of first and second block polymers with high and low Tg, respectively, as the improved results would not have been expected. However, for the sake of brevity, Applicants limit their discussion in this section to Frechet '855 and Anton, which, when considered as a whole, expressly teach away from the claimed invention.

Frechet '855

In the instant Office Action, the Examiner focuses on the teachings of Frechet '925, but does not explain why one skilled in the art would have been motivated to use the claimed amount of first and second block polymers reading Frechet '855. Applicants previously noted that Frechet '855 teaches that it is preferable that the polymer contains more of component B with the low Tg than component A with the high Tg. *See* Frechet '855 at col. 5, lines 12-15 ("**Preferably**, the molar ratio of the core polymer [low Tg] to the flanking polymers [high Tg] is from 3:1 to 10:1.") (emphasis

added). Frechet '855, therefore, teaches away from the claims, which require that the block polymer contain more of the first block with a higher Tg than the second block with a lower Tg. See M.P.E.P. § 2141.02(VI) ("A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention.") (citation omitted); see also *Tec Air, Inc. v. Denso Mfg. Michigan Inc.*, 192 F.3d 1353, 1360, 52 U.S.P.Q.2d 1294 (Fed. Cir. 1999) ("There is no suggestion to combine, however, if a reference teaches away from its combination with another source.").

Thus, Applicants respectfully submit that this rejection should be withdrawn for at least this additional reason.

Anton

The Examiner asserts that Anton teaches that the weight ratio of two repeat units can vary from 2-99 wt% of the first repeat unit to 1-98 wt% of the second repeat unit, and vice versa. See Sept. 7, 2007, Office Action at 10 (citing Anton, col. 5, lines 1-32). The Examiner, however, seems to ignore the fact that Anton states that the polymer "preferably" contains 50 wt% of the first repeat unit and 50 wt% of the second repeat unit. See Anton at col. 5, lines 23-25. Moreover, Anton also states that the polymer contains "more preferably" 40-60 wt% of the first repeat unit having a lower Tg and 40-60 wt% of the second repeat unit having a higher Tg. See *id.* at col. 5, lines 19-23. Such teachings would not have motivated one skilled in the art to use more of the repeat unit with the higher Tg and less of the repeat unit with the lower Tg, as required by the claims. If anything, one skilled in the art would have been led to using an almost equal amount of the first and second repeating units. Accordingly, Applicants

respectfully submit that this rejection is in error for this reason as well and should, therefore, be withdrawn for at least this additional reason.

B. The References Do Not Teach or Suggest a Third/Intermediate Block or a Polydispersity Index of Greater than 2

The Examiner again dismisses Applicants' arguments that (1) the references do not teach or suggest a triblock polymer as claimed, comprising an intermediate block comprising at least one constituent monomer of the at least one first block and at least one constituent monomer of the at least one second block, and (2) the references do not disclose or suggest a block polymer as claimed with a polydispersity index of greater than 2. *See* Sept. 7, 2007, Office Action at 3-12.

Regarding the first point, for the sake of brevity, Applicants do not repeat in full the arguments of their previous responses regarding why each of the references do not teach or suggest a third/intermediate block, but incorporate them by reference.

In short, however, Galleguillos does not teach or suggest a third/intermediate block, in contrast to the Examiner's assertion. *See* Galleguillos, col. 4, lines 20-24; col. 5, lines 21-22. The Frechet references do no teach or suggest an intermediate block in the disclosed block copolymers, much less an "intermediate block comprising at least one constituent monomer of the at least one first block and at least one constituent monomer of the at least one second block," as claimed. And Anton, at best, discloses a diblock polymer, and nowhere mentions or suggests a third block or an intermediate block, much less an intermediate block comprising at least one constituent monomer of the first and second blocks as presently claimed.

Regarding the Examiner's second point, for the first time, the Examiner concedes that some of the references "are silent regarding the polydispersity index," but she argues that it would have been obvious

to control the optimum molecular weight, polydispersity, polymer composition and architectures of the resultant block copolymer product by varying experimental parameters such as source, amount, and solvation of catalyst/initiators/control agents, polymerization temperature and time, etc., as shown in [Graulus, Charmot, and Grubbs], which describe[] various processes in the production of block copolymer systems.

Sept. 7, 2007, Office Action at 11-12.

The Examiner, therefore, appears to take the position that the polydispersity of the block polymer is a result-effective parameter that one of ordinary skill in the art would have been motivated to optimize. The Examiner again disregards the fact that Schimmel teaches away from a block polymer with a polydispersity index of greater than 2, as claimed. Moreover, the other references do not recognize polydispersity as a result-effective parameter and, thus, it would not have been obvious to one of ordinary skill in the art to determine the optimum polydispersity through routine or manipulative experimentation. See M.P.E.P. § 2144.05(II)(B) ("A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation.").

Accordingly, because the references do not teach or suggest a third/intermediate block or a polydispersity index of greater than 2, nor would one skilled in the art have been motivated to optimize the polydispersity index to an amount greater than 2, the Examiner has not established a *prima facie* showing of obviousness with respect to the

pending claims. Applicants, therefore, respectfully request that these rejections be withdrawn for at least these additional reasons.

III. Conclusion

In view of the foregoing remarks, Applicants submit that the claimed invention is neither anticipated nor rendered obvious in view of the prior art references cited against this application.

If the Examiner believes a telephone conference could be useful in resolving any of the outstanding issues, he is respectfully urged to contact Applicants' undersigned counsel at 202-408-4152.

If there is any fee due in connection with the filing of this Statement, please charge the fee to our Deposit Account No. 06-0916.

Respectfully submitted,

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Dated: January 7, 2008

By: 

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Attachment: Declaration of Bertrand LION Under 37 C.F.R. § 1.132